श्री सभापति : वह बना ही नहीं है।

कुमारी सईदा खातून : बना नहीं है, बनाने जा रहे हैं। तो उसमें जो ये रैंक्स हैं उनमें यह चेंज करने जा रहे हैं। दूसरा सैनिक स्कूलों में हिन्दी मीडियम के स्कूल आप बनाने का उसमें प्रावधान रखेंगे या नहीं? ए.डी.आई. एस. और हैडमास्टर्स के रैंक को तोड़ने जा रहे हैं यह सुनाई दिया है। इन रैंकों को न तोड़कर आप अलग से कोई प्रावधान करें। जो ए.डी.आई.एस. और हैडमास्टर्स का रैंक है इनको मध्य प्रदेश में खास तौर से आप समाप्त करने जा रहे हैं तथा इन रैंक्स को एक बना देना चाहते हैं, इसके लिये मैं आपसे जवाब चाहूंगी।

श्री विमल भाई मेहता : मध्य प्रदेश सरकार तो हमारे ज्योरिसडिक्शन के नीचे नहीं आती है। वहां वे क्या करते हैं उसके बारे में हम नहीं कह सकते हैं। हिन्दी मीडियम के बारे में जो बात आपने कही तो हमारे सेंट्रल स्कूलों में हिन्दी भी सिखाई जाती है, इंगलिश भी सिखाई जाती है और रीजनल लैंग्वेज वाले अगर 20 स्टुडेंटस हों तो वह भी सिखायी जाती है। हम सभी लैंग्वेजेज पर जोर देते हैं। और राष्ट्रभाषा से भी प्रेम करते हैं।

SHRI SURESH KALMADI Half an hour is gone on one question.

MR. CHAIRMAN: Question 162.

PROF. SOURENDRA BHATTACHARJEE: Sir, this is very unfair. You do not look to Members on this side. I cannot continue sitting here in the Question Hour.

MR. CHAIRMAN: I have given 28 minutes to this question.

PROF. SOURENDRA BHATTACHARJEE: But why did you overlook me?

*(At this stage the hon. Member left the Chamber)*

MR. CHAIRMAN: I cannot help it. It is very difficult. I have overlooked so many others. Let us proceed. Twenty-eight minutes have been spent on one question alone. I have overlooked Smt. Kamla Sinha also, Mr. Patel also.

**Threat of Radioactivity from Narora Atomic Power Plant in Uttar Pradesh**

*162. SHRIMATI VEENA VERMA.†

SHRI KAPIL VERMA:

Will the PRIME MINISTER be pleased to state:

(a) whether Government are aware of the campaign of a voluntary organisation, contending that the Narora Atomic Power Plant poses a direct threat to millions of people living in the adjoining areas inspite of the safeguards against ardioactive pollution taken by Government;

(b) if so, what is the present position in this regard; and

(c) whether it is a fact that for every hundred megawatt of generation of power, 130 MW is lost as heat, which causes thermal pollution; if so, what steps Government propose to take to remedy the situation?

THE MINISTER OF STATE IN THE MINISTRY OF SCIENCE AND TECHNOLOGY (PROF. M. G. K. MENON): (a) to (c) A statement is laid on the Table of the House.

**Statement**

(a) and (b) A brochure entitled "The Untold Story" on the Narora Atomic Power, Plant circulated by "Network to oust Nuclear Energy" has come to the attention of the Government. Government is of the view that there is no perceivable danger to people living in the adjoining areas around Narora Atomic Power

†The question was actualy asked on the floor of the House by Shrimati Veena Verma.

specific features have been envisaged in the Plant? I want a clear answer to this.

MR. CHAIRMAN: The question is: What specific measures have you taken? If there is an earthquake, what are your precautions for it?

PROF. M. G. K. MENON: Sir, as you are aware, civil engineering has now progressed to a point where you can safely construct buildings in earthquake prone zones. For example, Japan.

MR. CHAIRMAN: Have you taken those measures?

PROF. M. G. K. MENON: Exactly. They have been taken.

SHRI KAPIL VERMA: What measures have been taken? No bland statement.

PROF. M. G. K. MENON: In terms of the basic elements of civil engineering,...

SHRI KAPIL VERMA: Be clear and specific.

PROF. M. G. K. MENON: When an earthquake takes places, there is a movement....

MR. CHAIRMAN: He can answer that very easily. But he will take time.

SHRI KAPIL VERMA: He must be clear. Crores of people are worried. About 56 kilometres away from Narora there was an earthquake in 1956. This is the objection. The Minister is not able to convince, Sir.

MR. CHAIRMAN: You need not get upset. Your question is very clear. He is answering. You are unnecessarily wasting the time of the House.

**डा० रत्नाकर पांडेय** : मंत्री महोदय ने ठीक जवाब नहीं दिया, प्रधान मंत्री जी को कहिये ।

**श्री सभापति** : वह काग्नीजैंस लिये हैं; वह बता रह हैं, वह ढ़ील कर रहे हैं ।

He himself is a scientist. You hear him.

PROF. M. G. K. MENON: If the hon. Members would permit, I can try and explain. If the hon. Members would listen, I will be glad to explain it in as much detail as they would like. The basic feature is that when you have an earthquake, you have movements in different directions on the earth crust. If you have any structure, you want to ensure that the structure does not collapse due to there movements. It must be able to take the essential shock or vibraion which akes place a specified frequencies. There are clear-cut civil engineering techniques for this particular purpose. For example, earthquakes of very severe magnitude have hit a major city like Tokyo, which has got enormous sky-scrapers. You do not even see a scratch on those buildings after an earthquakes, because of the way in which the actual structures have been mounted on the ground, with shock-absorbing or movement-vibration absorbing techniques which are used in actual construction. This is certainly therefore, feasible and this has been taken into account in the case of Narora. The other feature which I must point out is that Narora is in what is called seismic zone III. The whole of India is divided into five zones in terms of seismicity. There is zone I, II and III in upward order of seismicity. It is in seismic III three where a large part of India comes. In fact, it is only areas like for instance the North East or in certain parts along the Himalayas that zones IV and V of high seismicity be.

MR. CHAIRMAN: But he said there has been earthquake sometime back nearby.

SHRI KAPIL VERMA: Fifty-six kilometers away from this place.

THE PRIME MINISTER (SHRI VISHWANATH PRATAP SINGH): Sir, the hon. Member was asking about the measures taken. We received an already built plant and all the measures were taken by the previous Government. I am sure they have all the details, when the foundation was laid and the design was prepared. We have got a running plant. Now what to do about that?

SHRI KAPIL VERMA: You should know about all this. You were in the previous Government as the Finance Minister.

SHRI CHATURANAN MISHRA: If something is lacking in their Government it is for you to make up that thing.

SHRI VISHWANATH PRATAP SINGH: Even we are satisfied.

SHRI KAPIL VERMA: You are misleading the House. You were the Finance Minister at that time. You tell the House what happened at that time.

SHRI VISHWANATH PRATAP SINGH: He is getting angry for nothing.

SHRI YASHWANT SINHA: Sir, the question basically relates to pollution from this atomic power plant. Now, what I would like to know from the Minister is (a) what is the radius within which the population will be considered to be likely to be affected by the radiation hazards of this power plant? (b) Is there any provision for any periodic surveys of the health of the people living within this radius? And (c) To what extent the precautions which we take in this captive area compare with the precautions taken by other countries in similar situations?

PROF. M. G. K. MENON: Sir, with regard to the question of radiation, and hazards due to radiation to the population around, they essentially arise through either the water or air. As far as the water is concerned, there is no radioactive discharge from the Narora atomic power plant into the Ganga or into any of the hydrological systems in the vicinity. This is essentially because of the design of the reactor system itself. There is also no thermal pollution either, which is normally the situation which arises when you generate hot water and discharge it into a system. This is because the reactor is essentially cooled through cooling tower systems.

As far as air pollution is concerned, one of the major elements, which is Argon forty-one, has been greatly minimised as far as this reactor system is concerned. With regard to the specific zone the Member asked for in relation to surrounding population there are two zones which we normally take into account. Around the reactor, there is a first zone of radius 0.8 kilometres, where normal population is permitted. The second zone of radius upto 1.6 kilometres is one where activities can go on, where the individuals and families can be evacuated in case there is any particular problem. We have acquired the entire area also to aviod a surrounding population.

The next aspect is that we observe all international safety aspects, as well as in any other country, as defined by the International Atomic Energy Agency, and by our own Atomic Energy Regulatory Board, regard to the monitoring of both air and water for all the isotopes that are relevant. We do a continuous monitoring and this is true not only of the Narora atomic power plant but for all atomic power plants all over the country.

Finally, the health aspects of those in the vicinity are also moni-

Plant. All safety features like two independent shutdown systems, emergency core cooling system, double containment envelope etc. in the plant as also procedural safeguards for the safety of the plant, its operating personnel and the public have been provided.

(c) Overall thermal efficiency of a nuclear power plant is about 30 per cent. This is of the same order as that of a thermal power plant. This is normal in a thermodynamic steam cycle. For a 235 MW (electrical) power plant, the heat rejected in the condenser is about 520 MW (thermal). In the case of Narora, due to adoption of evaporative cooling towers at this site, the reject heat is not released into the natural water body. The reject heat in the case of Narora converts a small part of the cooling water into water vapour in the cooling towers which gets dispersed into the atmosphere through the tall coling towers. This approach is common to conventional thermal power stations also and is in use all over the world.

SHRIMATI VEENA VERMA: Sir, the original sanctioned project cost for Narora Atomic Power Plant was Rs. 29.52 crores. It was revised to Rs. 399.4 crores in 1982. But by March, 1988, only 87 per cent of the project had been completed. And the money spent was already Rs. 487 crores. At that time, it was proposed to increase the project cost to Rs. 532.84 crores. Now I want to know from the Minister, what is the increased final project cost approved and how much has already been spent? I also want to know what is the reason for the escalation of the cost by three times and delay in the completion of the project which was to be completed in seven years but twelve years have already been taken.

PROF. M. G. K. MENON: Sir, the hon. Member is right about the figures which she has quoted. Two units of Narora were sanctioned in 1974 at an estimated cost of Rs. 209.89 crores and the original scheduled dates for completion of Units I and II were 1981 and 1982 respectively. The costs were revised upwards in 1983 to Rs. 399.64 crores. Thereafter, as the hon. Member has pointed, there is a proposed revised cost of Rs. 532.85 crores, which was put up in 1986, this is under consideration of Government for approval. In particular, what is now being done is that there is a consultant appointed by the Ministry of Programme Implementation who is reviewing the project management system of the Narora plant and after the report is received the proposal for revision will be put up to the Cabinet for approval. The hon. Member has asked about the reasons why there has been both a cost and time overrun, namely, escalation in cost as well as a delay in completion of the project. The principal reason, Sir, is due to the fact that as far as the Narora atomic power plant is concerned, an effort has been made to make it a basic prototype for standardisation for all future 235 megawatt reactors as also the base for the 500 megawatt reactor systems and, therefore, a certain amount of effort has had to be put in on standardisation to achieve this.

The second reason for the additional cost and the extra time taken was to ensure that the station would be totally safe in terms of any seismic-based hazards in that region.

The third reason is the fact that over the period of time that this construction has been going on there have been much higher safety standards which have been imposed. These are increased safety standards internationally as well as those now being imposed by the Atomic Energy Regulatory Board. We have, of course, a very detailed analysis of each item in this regard. Apart from these aspects there have been delays of the

usual nature in the acquisition of land, in the arrival of various items of equipment and the extra cost due to this. There was also an increase in the scope of the work because the so-called "exclusion zone" has been increased from 0.8 kilometres to 1.6 kilometres. One can go into the details of each one of the facets but these are the reasons in brief.

Finally, I would say that the cost estimates of Rs. 532 crores which was indicated by the hon. Member which is under consideration is based on achieving criticality in March, 1988 for Unit I and June, 1989 for Unit II. But since the criticality has been somewhat thereafter there may be a slight increase in this figure also.

SHRIMATI VEENA VERMA: Sir, may I know from the hon. Minister whether the reactor is now run at full hundred per cent power level or less? What is the load factor? What is the design output? What is the cost per unit generated and whether it will be economical?

PROF. M. G. K. MENON: Sir, the first unit achieved criticality in March, 1989. It was synchronised with the Northern grid for the first time in July, 1989. The unit has been authorised by the Atomic Energy Regulatory Board to operate at 75 per cent of full power.

Today that unit is operating since July, 1990 at a power level of 140-150 megawatts compared to 235 megawatts which will be the full capacity. This unit has already generated about 200 million kilowatt hours. The second unit of Narora is expected to achieve criticality towards December, 1990. The actual cost of power from the Narora Plant has not yet been fully worked out. What is being done at present is to supply not "commercial power" but "infirm power" which is essentially because the plant is still under testing and not fully commissioned. "Infirm power" will cost 0.64 paise per unit. But the actual final cost which will take account of all the various features including investment, interest rate depreciation, heavy water leasing costs and so on, will be a little over one rupee per unit.

MR. CHAIRMAN: What is your guesstimate?

PROF. M. G. K. MENON: It will be over one rupee. It is not finalised.

SHRI KAPIL VERMA: Sir, there is a powerful movement all over the world against nuclear plants. In our country also there is a movement against it. This has been referred to in this question. The main problem is that it is located on banks of river Ganges.. Crores of people live in the basin. The affluents flow into the river.

MR. CHAIRMAN: He has taken cognizance of it.

SHRI KAPIL VERMA: I want to point out about low level radiation which has not been referred to here. Scientists say that it can cause continuous low level radiation, cause permanent injury, minute to minute injury. It causes genetic defects also in human beings in the coming generations, many generations.

MR. CHAIRMAN: Come to the question. He is congnizant of it.

SHRI KAPIL VERMA: What precautions have been taken about it? It is there in the seismic area. The Government could have foreseen this while framing the estimates. The estimates have been revised midway. People are very apprehensive about it. The Government has been making bland statements that precautions have been taken. So, I want to know definitely and specifically what specific features and specific measures have been introduced or built into the Plant to take care of earthquakes because people are very apprehensive of the earthquakes. What is going to happen then? What specific measures have been taken? What

tored in order to see whether there is anything unusual taking place.

MR. CHAIRMAN: Outside 1.6 kilometres?

PROF. M. G. K. MENON: Outside that limit is normal habitation. There we don't do continuous or extensive monitoring because that can be there for any distance.

MR. CHAIRMAN: Is there any source of pollution beyond 1.6 kilometres? Is there no pollution at all?

PROF. M.G.K. MENON: Not of any significance Sir. Anything which is discharged through the cooling towers and so on, that of course will be dispersed widely. But the main point is that radioactive pollution is reduced to a level which is enormously below, not more than even fraction of, 1 per cent of the permissible does, it is estimated at around 1 per cent of natural background at 1.6 Km.

SHRI YASHWANT SINHA: Mr. Chairman, Sir, my point is, whether there is any periodic health survey of the people within that zone. Now, if there is periodic health survey of all the families, of all the people within that zone, then the Minister could state that they have this system and it is only that system which can clearly prove whether there is an adverse impact of the plant or not.

MR. CHAIRMAN: You have mentioned 1.6 Km. Is there any provision for periodic survey or health survey of the people? That is the question.

PROF. M. G. K. MENON: Sir, with regard to the zones that we are concerned with, both in terms of radiation as well as health, these are monitored and outside that in terms of food sampling. ...*(Interruption)*.

MR. CHAIRMAN: He wants to know about health.

PROF. M. G. K. MENON: Sir, it is in tarms of radiation as well as health. But this is for certain specific items of disease which can be related, such as leukaemia, to radiation. It must be stated that there is no regular surrounding population within the 1.6 Km. zone.

CHOWDHRY HARI SINGH: Mr. Chairman, Sir, I come that area and I would certainly like to know. .*(Interruption)*.

MR. CHAIRMAN: Everybody knows that you are from Bulandshahr.

CHOWDHRY HARI SINGH: Sir, there is a definite effect of the radiation on the health of human beings as well as animals. This effect of the radioactive pollution on the lives of men, women, children as well as animals has never been examined. May I know from the hon. Minister whether he will appoint an expert team and send it to this area because this is a specialised subject and every doctor, every physician cannot examine the effect of the radioactive pollution on the human life? Will he appoint an expert committee to examine diseases of the people living in the vicinity of Narora plant.

PROF. M. G. K. MENON: Sir, all of this comes under the purview of the Atomic Energy Regulatory Board, which is concerned with certifying and permitting the power reactor systems' functioning. There are health and safety groups which include medical personnel and which carry out these surveys as well as monitoring. As far as this particular Narora plant is concerned, it has only been functioning since very recently because earlier it was under construction. From the view-point of actual reactor operation, as I have mentioned, it achieved criticality in March 1989. It is only operating since July 1990 at the current power level which could be considered in some sense commercial power level and therefore the question of already having produced an impact does not arise.

**श्री सभापति** : श्री शांति त्यागी ।

**श्री शांति त्यागी** : सभापति जी, मेरा सप्लीमेंटरी सवाल हो चुका । मेरा सवाल अर्थ-क्वंक पर था, जो हो चुका है ।

**श्री सभापति** : ठीक है । क्वैश्चन नंबर 163 ।

SHRI SUREH KALMADI:*

MR. CHAIRMAN: You are a senior Member and you know.. (*Interruption*).

**डा० रत्नाकर पाण्डेय** :*

**श्रीमती सत्या सहिन** :*

**श्री सभापति** : कोई भी सवाल जो क्वैश्चन से अलग है, वह रिकार्ड पर नहीं जाएगा ।

**डा० रत्नाकर पाण्डेय** :*

**श्री सभापति** : यह क्वैश्चन-आवर है; जनाबेआला, मेनका गांधी पर कोई सवाल नहीं हैं । ...(**व्यवधान**)... जो क्वैश्चन है उसका मंत्री जी जवाब दे रहे हैं । ...(**व्यवधान**)...

MR. CHAIRMAN: The Cabniet Minister is answering. That is all.

SHRI MAKHAN LAL FOTEDAR:*

MR. CHAIRMAN: That you can find out later on, not in the Question Hour.

**Study on the Ecology of Eastern Ghats**

*163. SHRI KAMAL MORARKA: Will the Minister of ENVIRONMENT AND FORESTS be pleased to state:

(a) whether there is any proposal under Government's consideration for conducting a fresh study of ecology of the Eastern Ghats;

(b) if so, what are the details thereof; and

(c) what has been the outcome of the studies conducted so far in this regard?

THE MINISTER OF ENVIRONMENT AND FORESTS (SHRI NILAMANI ROUTRAY): (a) and (b) There is no proposal to undertake any fresh study relating to the ecology of the Eastern Ghats.

The Ministry of Environment & Forests has been supporting ecological research in the Eastern Ghat region under "ACTION-ORIENTED ECO-DEVELOPMENT RESEARCH PROGRAMME" relating to the various aspects of ecology of Eastern Ghats and that is still continuing.

(c) The Projects funded so far under the scheme have generated useful information for conservation of biological diversity reclamation of mined areas, land use, resourse management and co-development of Eastern Ghats.

SHRI KAMAL MORARKA: Sir, my first supplementary is this. In this reply, the Minister has mentioned 'The Projects funded so far under the scheme,..' What is the total sanction of funds that you have made for the various projects under the scheme and how much amount has been disbursed and spent so far?

SHRI NILAMANI ROUTRAY: Sir, ... (*Interruptions*).

SHRI SURESH KALMADI: Mr. Kamal Morarka, it is cruelty to the Minister

SHRI NILLAMANI ROUTRAY: So far, a provision of Rs. 150 lakhs is made.

SHRI KAMAL MORARKA: Sir, I am fully satisfied with the reply. (*Interruptions*). I do not have any other supplementary.

*Not recorded